NEBRASKA HEALTH AND HUMAN SERVICES REGULATION AND LICENSURE

180 NAC 9

TITLE 180 CONTROL OF RADIATION

CHAPTER 9	RADIATION SAFETY REQUIREMENTS FOR FOR NON HUMAN USE PARTICLE
ACCELERAT	ORS

9-001 Scope and Authority	. 1
9-002 Registration Requirements	
9-003 General Operating Requirements for the Issuance of a Registration for Particle	
Accelerators	. ′
9-004 Human Use of Particle Acclerators	. 2
9-0045 Operator Qualifications	
9-00 56 Limitations	
9-0067 Shielding and Safety Design Requirements	
9-0078 Particle Accelerator Controls and Interlock Systems	
9-0089 Warning Devices	.3
9-00910 Operating Procedures	
9-0104 Radiation Monitoring Requirements	
9-0112 Ventilation Systems	

NEBRASKA HEALTH AND HUMAN SERVICES REGULATION AND LICENSURE

180 NAC 9

THIS PAGE WAS INTENTIONALLY LEFT BLANK

NEBRASKA HEALTH AND HUMAN SERVICES REGULATION AND LICENSURE

180 NAC 9

TITLE 180 CONTROL OF RADIATION

CHAPTER 9 RADIATION SAFETY REQUIREMENTS FOR NONHUMAN USE PARTICLE ACCELERATORS

9-001 SCOPE AND AUTHORITY:

<u>9-001.01</u> 180 NAC 9 establishes procedures for the registration and use of particle accelerators <u>for nonhuman use</u>. The regulations are authorized by and implement the Nebraska Radiation Control Act, <u>Neb. Stat. Rev.</u> §§ 71-3501 to 35<u>20.</u>19.

<u>9-001.02</u> In addition to the requirements of 180 NAC 9, all registrants are subject to the requirements of 180 NAC 1, 2, 4, 10, 15, 17 and 18. Registrants engaged in industrial radiographic operations are subject to the requirements of 180 NAC 5. Registrants engaged in the healing arts are subject to the requirements of 180 NAC 6 and/or 180 NAC 7. Registrants whose operations result in the production of radioactive material are subject to the requirements of 180 NAC 3.

REGISTRATION PROCEDURE

<u>9-002 REGISTRATION REQUIREMENTS:</u> Any person intending to receive, possess, use, transfer, own, or acquire a particle accelerator must be authorized in a registration issued pursuant to 180 NAC 2.

9-003 GENERAL OPERATING REQUIREMENTS FOR THE ISSUANCE OF A REGISTRATION FOR PARTICLE ACCELERATORS: In addition to the requirements of 180 NAC 2, registration application for use of a particle accelerator will be approved only if the Agency Department determines that:

- 1. The applicant has appointed a radiation safety officer:
- 2. The applicant has established a radiation safety committee to approve, in advance, proposals for use of a particle accelerator(s). The radiation safety committee of at least three members will oversee the use of the particle accelerator, and review the institution's radiation safety program. Membership of the committee should include at least the following: an authorized user, a representative of the institution's management and the Radiation Safety Officer;
- 3. The applicant's proposed or existing equipment, facilities and operating and emergency procedures are adequate to protect health and minimize danger to public health and safety or property as required in 180 NAC 9-004 through 9-01009;
- 4. The applicant is qualified by reason of training and experience to use the accelerator in question for the purpose requested in accordance with 180 NAC 9 and 180 NAC 4 and 10 in such a manner as to minimize danger to public health and safety or property

NEBRASKA HEALTH AND HUMAN SERVICES REGULATION AND LICENSURE

180 NAC 9

- 5. The issuance of the registration will not be inimical to the health and safety of the public, and the applicant satisfies any applicable special requirement in 180 NAC 9-004, and
- 6. The applicant and/or the applicant's staff has training and experience in the use of particle accelerators as specified in 180 NAC 15.25.
 - <u>9-004 HUMAN USE OF PARTICLE ACCELERATORS:</u> In addition to the requirements of 180 NAC 2, a registration for use of a particle accelerator in the healing arts will be issued only if:
- 1.The applicant has appointed a radiation safety committee of at least three members to eversee the use of the particle accelerator, and to review the institution's radiation safety program. Membership of the committee should include at least the following: an authorized user, a representative of the institution's management and the Radiation Safety Officer.
- 2. The individuals designated on the application as the users have training and experience as designated in 180 NAC 15-005 in deep therapy techniques or in the use of particle accelerators to treat humans; and
- 3. The individuals designated on the application as the users are physicians.
- Any applicant employing Radiation Therapists to perform radiation therapy procedures
 must require that they have training and experience requirements as specified in 180
 NAC 15-021.

RADIATION SAFETY REQUIREMENTS FOR THE USE OF PARTICLE ACCELERATORS

<u>9-0045 OPERATOR QUALIFICATIONS:</u> Any person intending to operate an accelerator must meet the training requirements of 180 NAC 15-024 (accelerators under 1 MeV) or 180 NAC 15-025 (non-human use accelerators). above 1 MeV).

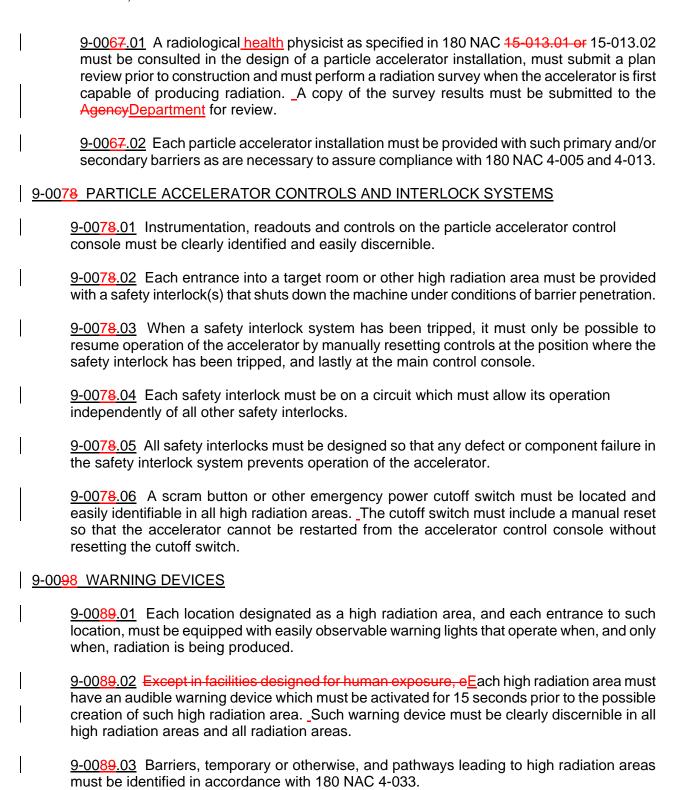
9-0056 LIMITATIONS

- 1. No registrant must permit any individual to act as an operator of a particle accelerator until such individual:
 - a. Has been instructed in radiation safety and must have demonstrated an understanding thereof;
 - b. Has received copies of and instruction in 180 NAC 9 and the applicable requirements of 180 NAC 4 and 10, pertinent registration conditions and the registrant's operating and emergency procedures, and must have demonstrated understanding thereof; and
 - c. Has demonstrated competence to use the particle accelerator, related equipment, and survey instruments which will be employed.
- 2. The radiation safety committee or the radiation safety officer must have the authority to terminate the operations at a particle accelerator facility if such action is deemed necessary to minimize danger to public health and safety or property.

9-0067 SHIELDING AND SAFETY DESIGN REQUIREMENTS

NEBRASKA HEALTH AND HUMAN SERVICES REGULATION AND LICENSURE

180 NAC 9



NEBRASKA HEALTH AND HUMAN SERVICES REGULATION AND LICENSURE

180 NAC 9

9-00940 OPERATING PROCEDURES

- 9-00940.01 Particle accelerators, when not in operation, must be secured to prevent unauthorized use. 9-00940.02 The safety interlock system must not be used to turn off the accelerator beam except in an emergency. 9-00940.03 All safety and warning devices, including interlocks, must be checked for proper operation at intervals not to exceed six months. Results of such tests must be maintained at the accelerator facility for inspection by the Agency Department. 9-00940.04 Electrical circuit diagrams of the accelerator and the associated interlock system must be kept current and maintained for inspection by the Agency Department and must be available to the operator at each accelerator facility. 9-000940.05 If, for any reason, it is necessary to intentionally bypass a safety interlock or interlocks, such action must be: Authorized by the radiation safety committee and/or radiation safety officer; 1. 2. Recorded in a permanent log and a notice posted at the accelerator control console; and 3. Terminated as soon as possible. 9-00910.06 A copy of the current operating and emergency procedures must be maintained at the accelerator control panel. 9-0104 RADIATION MONITORING REQUIREMENTS 9-0104.01 There must be available at each particle accelerator facility appropriate portable monitoring equipment which is operable and has been appropriately calibrated, for the radiation being produced at the facility. The equipment must be tested for proper operation daily and calibrated at intervals not to exceed one year and after each servicing and repair. 9-0104.02 A radiation protection survey must be performed, and documented by a radiological health physicist as specified in 180 NAC 15-013.01 or 15-013.02, when changes have been made in shielding, operation, equipment, or occupancy of adjacent areas. 9-0104.03 Radiation levels in all high radiation areas must be continuously monitored. The
 - <u>9-0104.04</u> All area monitors must be calibrated at intervals not to exceed one year and after each servicing and repair.

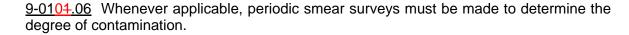
monitoring devices must be electronically independent of the accelerator control and safety

interlock systems and capable of providing a readout at the control panel.

<u>9-0104.05</u> Whenever applicable, periodic surveys must be made to determine the amount of airborne particulate radioactivity present.

NEBRASKA HEALTH AND HUMAN SERVICES REGULATION AND LICENSURE

180 NAC 9



<u>9-0104.07</u> All surveys must be made in accordance with the written procedures established by a radiological <u>health</u> physicist as specified in 180 NAC 15-013.01 or 15-013.02, or the radiation safety officer.

<u>9-0104.08</u> Records of all radiation protection surveys, calibration and instrumentation tests, must be maintained at the accelerator facility for inspection by the <u>AgencyDepartment</u>.

9-0112 VENTILATION SYSTEMS

<u>9-0112.01</u> Ventilation systems must be provided to ensure that personnel entering any area where airborne radioactivity may be produced will not be exposed to airborne radioactive material in excess of those limits specified in 180 NAC 4, Appendix 4-B, Table I.

<u>9-0112.02</u> A registrant, as required by 180 NAC 4-014, must not vent, release or otherwise discharge airborne radioactive material to an unrestricted area which exceed the limits specified in 180 NAC 4, Appendix 4-B, Table II, except as authorized pursuant to 180 NAC 4-014 or 4-040. For purposes of 180 NAC 9-0112.02, concentrations may be averaged over a period of not greater than one year. Every reasonable effort should be made to maintain releases of radioactive material to unrestricted areas as far below these limits as is reasonably achievable.

